R E M A R K S

Reconsideration of this application, as amended, is respectfully requested.

THE CLAIMS

Claim 1 has been amended to delete the option "cause simultaneous light emission of all of the plurality of light emitting devices" from the recitation of the control by the control unit in the moving image capturing mode. No new matter has been added, and it is respectfully requested that the amendment to claim 1 be approved and entered.

THE PRIOR ART REJECTION

Claims 1 was rejected under 35 USC 103 as being obvious in view of the combination of USP 6,201,880 ("Elbaum et al"), US 2004/0076921 ("Gofman et al"), USP 5,051,823 ("Cooper et al"), and USP 6,111,650 ("Rawicz et al"); claims 17-23, 25-28, and 30-35 were rejected under 35 USC 103 in view of the combination of Elbaum et al, Gofman et al, Cooper et al, Rawicz et al, and WO 02/012847 ("Gill et al"); claim 24 was rejected under 35 USC 103 as being obvious in view of the combination of Elbaum et al, Gofman et al, Cooper et al, Rawicz et al, and USP 5,503,559 ("Vari"); and claim 29 was rejected under 35 USC 103 as being obvious in view of the combination of Elbaum et al,

Gofman et al, Cooper et al, Rawicz et al, and USP 6,276,933 ("Melnyk et al"). These rejections, however, are respectfully traversed.

Claim 1

Gofman et al and Cooper et al completely fail to disclose or even remotely suggest the features of claim 1 that the Examiner asserts they disclose.

Gofman et al relates to the light-emitting tool used by (for example) dentists to cure compounds such as those used in teeth fillings. (See, for example, Fig. 10 and the background section of Gofman et al.) The invention of Gofman et al is to provide a curing light that has multiple light sources whose light is integrated into a single output light beam. The result is a single output beam with a broader spectral width than the light produced by any individual one of the light sources. The output light beam is thereby capable of curing a variety of dental compounds. (See, for example, the abstract and paragraphs [0010]-[0012] , [0027] and [0030]-[0036] of Gofman et al.) Gofman et al, naturally, relates only to emitting light. And it is respectfully pointed out that the curing-light-emitting tool of Gofman et al does not capture an image of the subject being illuminated by the curing light, and that this reference does not at all suggest such a use.

Nevertheless, the Examiner asserts that Gofman et al discloses "an image pick-up optical system which forms an image of a subject illuminated by the illuminating light source." (See page 4 of the Office Action.) This assertion is completely unsupported by the disclosure in Gofman et al. Gofman et al discloses emitting curing light, not obtaining a subject image of a subject illuminated by emitted light. The Examiner points to Fig. 8a and paragraphs [0037], [0038], [0043], and [0044] of Gofman et al for support. Paragraph [0037] (describing Fig. 8a) of Gofman et al, however, however, describes the optical system that guides light from LEDs to a subject. See paragraph [0037], lines 3-10 of Gofman et al:

> [A] fiber optic cable assembly 26 . . . receives light produced by individual LEDs 22 at input surfaces 33, and conducts light to a transmitting surface 34, to be re-directed to input surface 35 of fiber optic light guide 37. Light is directed by conventional light guide 37 to transmitting surface 36 for application, for example, to polymerize a dental composite resin. (Emphasis added.)

Contrary to the Examiner's assertion on page 3 of the Office Action, paragraph [0037] of Gofman et al clearly does not disclose "an image pick-up optical system which forms an image of a subject illuminated by the illuminating light source" as recited in claim 1. Paragraphs [0038], [0043], and [0044] of Gofman et al, moreover, like the rest of Gofman et al, merely relate to light emission. Contrary to the Examiner's assertions,

Gofman et al does not disclose "an image pick-up optical system which forms an image of a subject illuminated by the illuminating light source" as recited in claim 1.

As the Examiner appears to recognize, Gofman et al does not disclose or suggest performing lighting control of the LEDs in the manner of the control of the light-emitting devices performed in the spectroscopic image capturing mode or moving image capturing mode recited in claim 1. Indeed, the invention of Gofman et al lies in simultaneously emitting light from a plurality of light sources and combining the light from the light sources to produce a light beam that can be used to cure a variety of compounds. (See, for example, the abstract and paragraphs [0012] and [0030] of Gofman et al.)

The Examiner has cited Cooper et al as disclosing the control unit and the spectroscopic image capturing mode and the moving image capturing mode of claim 1. Cooper et al discloses a dental instrument including a laser device (for treatment, not illumination - see column 2, lines 57-59 of Cooper et al) and an electronic video camera (see, for example, the Summary of the Invention in columns 2 and 3 of Cooper et al). And Cooper et al discloses that the instrument may include light sources for illuminating the area to be viewed (see, for example, column 2, lines 63-65, column 3, line 66 to column 4, line 3, and 7, lines 61-65 of Cooper et al.) It is respectfully pointed out, however,

that Cooper et al does not at all disclose or suggest the control unit, spectroscopic image capturing mode, or the moving image capture mode of claim 1.

Claim 1 recites:

> a control unit which controls light emission by the plurality of light-emitting devices and image pick-up by the image pick-up device and which switches the image capturing unit between a spectroscopic image capturing mode in which it obtains a still image of a subject spectroscopic image and a moving image capturing mode in which it obtains a moving image thereof;
>
> wherein, in the spectroscopic image capturing mode, the control unit controls the plurality of light-emitting devices to sequentially emit light according to the characteristics of spectroscopic distributions by a plurality of times interlocking the light emission with an exposure timing of the image pick-up device thereby causing the image pick-up device to obtain a plurality of subject spectroscopic images; and
>
> wherein, in the moving image capturing mode, the control unit is arranged to (i) cause light emission of a light-emitting device for a single specific primary color or cause light emission of light-emitting devices for a plurality of specific primary colors selected from the plurality of light-emitting devices, or (ii) cause sequential light emission of a group of R devices, a group of G devices, and a group of B devices selected from the plurality of light-emitting devices, group by group, and to cause the image pick-up device to obtain a moving image.

See claim 1, lines 15-38.

With respect to the control unit of claim 1, the Examiner cites this portion of Cooper et al:

> At the proximal end (not shown) of handle 101 is located one or more connectors for connection, via a cable assembly (not shown) to a video processor and control unit and a source of laser energy.

(Column 3, lines 62-66 of Cooper et al.) See the top of page 5 of the Office Action.

The cited portion of Cooper et al at best mentions a "control unit." Cooper et al does not even remotely suggest that the control unit "controls light emission by the plurality of light-emitting devices and image pick-up by the image pick-up device and ... switches the image capturing unit between a spectroscopic image capturing mode in which it obtains a still image of a subject spectroscopic image and a moving image capturing mode in which it obtains a moving image thereof" as recited in claim 1.

With respect to the spectroscopic image capturing mode and the moving image capturing mode of claim 1, the Examiner cites this portion of Cooper et al:

> As a feature of one embodiment of this invention, the handle of the dental camera includes means for communicating all appropriate signals and fluids to and from the camera head and the laser light emission port, and, if desired, valves and switching means located on the handle for controlling such communication.

(Column 2, line 65 to column 3, line 3 of Cooper et al.) See the bottom of page 5 of the Office Action.

This cited portion of Cooper et al bears no relation to the spectroscopic image capturing mode and the moving image capturing mode of claim 1. And it is respectfully submitted that Cooper et al does not at all disclose or suggest controlling a plurality of light-emitting devices and an image pick-up device unit to achieve the spectroscopic image capturing mode and moving image capturing mode of claim 1.

Thus, Gofman et al and Cooper et al clearly fail to disclose or suggest features of claim 1 for which they have been cited. And it is respectfully submitted that even if the cited references were combinable as suggested by the Examiner, the resultant combination would not achieve or suggest the features of the present invention as recited in claim 1 whereby a control unit which controls light emission by the plurality of light-emitting devices and image pick-up by the image pick-up device and which switches the image capturing unit between a spectroscopic image capturing mode in which it obtains a still image of a subject spectroscopic image and a moving image capturing mode in which it obtains a moving image thereof.

Accordingly, it is respectfully submitted that claim 1 and the claims depending therefrom clearly patentably distinguish over the cited references under 35 USC 103.

Claim 26

Dependent claim 26 recites that the plurality of illuminating light sources include at least one of: (i) a light source with a center wavelength of 780 to 900 nm, and (ii) a light source with a center wavelength of 300 to 380 nm.

In response, the Examiner cites wavelength bands centered at 500 nm, 600 nm, 700 nm, and white light in Elbaum et al. These wavelength bands do not fall within the ranges of claim 26.

Thus, even the portion of Elbaum et al cited by the Examiner does not disclose or suggest the features of claim 26.

Claim 28

Dependent claim 28 recites that the image capturing unit includes a color chip for calibration in the image processing unit.

In response, the Examiner cites an imaging camera in Elbaum et al. It appears that the Examiner has cited this portion of Elbaum et al because it mentions that an "image calibration scale was 43 pixels/mm over a 11.5-mm FOV" (column 7, line 11). See page 11 of the Office Action.

Although the word "calibration" is present in the cited portion of Elbaum et al, the cited portion of Elbaum et al clearly does not disclose "a color chip for calibration in the image processing unit" as recited in claim 28 (emphasis added).

Claims 31 and 32

Claim 31 recites subject portion sensing means for obtaining positional information of the subject. Claim 32 recites distance measuring means for managing a size of the subject in the photographed image.

In response, the Examiner cites "computer-calculated numerical measures" in Elbaum et al. The Examiner has not explained why "computer-calculated numerical measures" in Elbaum et al correspond to the features of claims 31 and 32, and it is respectfully submitted that "computer-calculated numerical measures" in Elbaum et al do not, in fact, correspond to the features of claims 31 and 32.

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In view of the foregoing, it is respectfully submitted that independent claim 1 and claims 17-35 depending therefrom clearly patentably distinguish over the cited references, in any reasonable combination consistent with the respective fair teachings thereof. Accordingly, it is respectfully requested that the rejections under 35 USC 103 be withdrawn.

Entry of this Amendment, allowance of the claims and the passing of this application to issue are respectfully solicited.

If the Examiner has any comments, questions, objections or recommendations, the Examiner is invited to telephone the undersigned at the telephone number given below for prompt action.

Respectfully submitted,

/Douglas Holtz/

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